Owner's Guide and Installation Instructions

Air Sourced 310 Heat Pump Water Heater

Install a Rheem

This water heater must be installed and serviced by an authorised person.
Please leave this guide with the householder.

Notice to Victorian Customers from the Victorian Plumbing Industry Commission.

This water heater must be installed by a licensed person as required by the Victorian Building Act 1993.

Only a licensed person will give you a Compliance Certificate, showing that the work complies with all the relevant Standards. Only a licensed person will have insurance protecting their workmanship for 6 years. Make sure you use a licensed person to install this water heater and ask for your Compliance Certificate.

PATENTS

This water heater may be protected by one or more patents or registered designs in the name of Rheem Australia Pty Ltd.

TRADE MARKS

® Registered trademark of Rheem Australia Pty Ltd.
™ Trademark of Rheem Australia Pty Ltd.

Note: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences, which may arise as a result of its application.

CONTENTS

HOUSEHOLDER – We recommend you read pages 4 to 13.

The other pages are intended for the installer but may be of interest.

About Your Water Heater **4**

Regular Care **8**

Water Supplies **9**

Save A Service Call **11**

Installation **14**

Heat Pump And Tank Assembly **21**

Connections – Plumbing **28**

Connections – Electrical **30**

Multiple Installations **32**

Commissioning **35**

Draining The Water Heater **36**

Warranty **39**

ABOUT YOUR WATER HEATER

MODEL TYPE

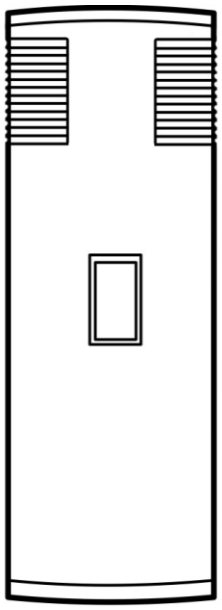
Your Rheem® air sourced heat pump water heater is designed for outdoor installation only. The model you have chosen is a 551 series model. The 551 310 model heat pump water heater is recommended for connection to a minimum 16 hour per day power supply.

A Rheem heat pump water heater consumes less energy than an electric water heater. The impact on an electricity account will depend on the tariff arrangement of the water heater replaced and where you live. Contact your energy provider for more information on tariff arrangements and cost comparisons.

The Rheem air sourced heat pump water heater has a Rheemglas® vitreous enamel lined steel cylinder. The water heater's evaporator absorbs heat from the surrounding air and transfers this heat into the water.

When hot water is drawn off and cold water enters the tank, the thermostat activates a fan, a compressor and a circulator. The fan draws outside air in through the air inlet louvres at the top of the water heater and the pump circulates water from the bottom of the storage tank through a heat exchanger. Heat is absorbed from the air by an evaporator and transferred into the water through the heat exchanger. The resulting cold air is then discharged through the air outlet louvres back to atmosphere and the heated water is circulated back into the top of the storage tank. This process continues while ever heating is required until the water in the storage tank reaches a temperature of 60°C.

Even on cloudy or cold days, heat is drawn from the surrounding air. The heat pump will operate when the ambient air temperature is 5°C or higher. The booster heating unit will operate when the ambient air temperature falls below 5°C, if heating is required. The efficiency of the water heater increases as the surrounding ambient air temperature increases.



Automatic safety controls are fitted to the water heater to provide safe and efficient operation.

ELECTRIC BOOSTING

Ice may begin to form on the evaporator reducing the heat pump efficiency, when the ambient air temperature falls below 7°C and the heat pump has been operating for an extended period. At ambient air temperatures below 5°C, the water heater deactivates the heat pump operation and switches to the booster heating unit. During this period the evaporator will defrost if necessary.

The boost capacity in this mode is 220 litres. The water inside the tank will be heated to a temperature of 60°C by the electric booster heating unit if heating is required. The temperature setting of the sensor controlling the booster heating unit is not adjustable and is set at 60°C.

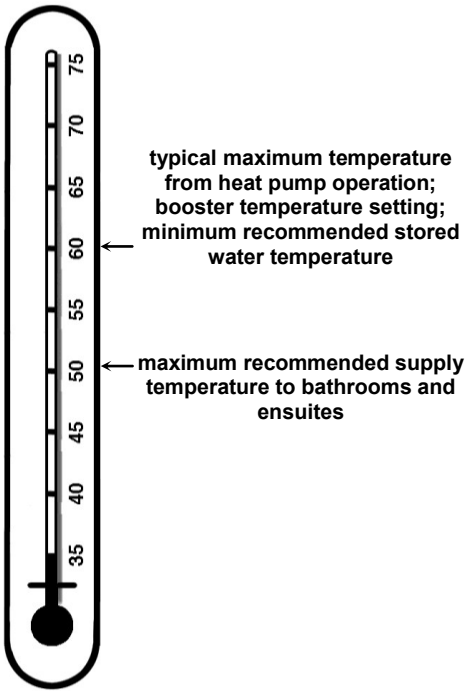
MAINS PRESSURE

The water heater is designed to operate at mains pressure by connecting directly to the mains water supply. If the mains supply pressure in your area exceeds that shown on page 15, a pressure limiting valve must be fitted. The supply pressure should be greater than 350 kPa for true mains pressure operation to be achieved. A minimum water supply pressure of 200 kPa is required to enable the heat pump circulator and heat pump system to operate effectively.

HOW HOT SHOULD THE WATER BE?

The system controls (compressor, evaporator and fan) will operate until a water temperature of approximately 60°C is reached. If the ambient air temperature is outside of the heat pump's operating range, the water temperature is boosted automatically to 60°C by the electric booster heating unit, if heating is required.

To meet the requirements of the National Plumbing Standard the temperature of the stored water must not be below 60°C.



HOTTER WATER INCREASES THE RISK OF SCALD INJURY

This water heater can deliver water at temperatures which can cause scalding. Check the water temperature before use, such as when entering a shower or filling a bath or basin, to ensure it is suitable for the application and will not cause scald injury.

We recommend and it may also be required by regulations that an approved temperature limiting device be fitted into the hot water pipe work to the bathroom and ensuite when this water heater is installed. This will keep the water temperature below 50°C at the bathroom and ensuite. The risk of scald injury will be reduced and still allow hotter water to the kitchen and laundry.

TEMPERATURE ADJUSTMENT

The thermostats controlling the heat pump and the booster heating unit are factory set and not adjustable.

⚠ WARNING

This water heater is only intended to be operated by persons who have the experience or the knowledge and the capabilities to do so. This water heater is not intended to be operated by persons with reduced physical, sensory or mental capabilities i.e. the infirm, or by children. Children should be supervised to ensure they do not interfere with the water heater.

This water heater uses 240 V AC electrical power for operation of the control systems and the electrically operated components. The removal of the access cover(s) will expose 240 volt wiring. They must only be removed by an authorised or qualified person.

- Do not use **aerosols, stain removers and household chemicals** near the water heater whilst it is working. Gases from some aerosol sprays, stain removers and household chemicals are corrosive to the materials used in the heat pump system.
- Do not store swimming pool chemicals, household cleaners, etc., near the water heater.
- Ensure the air inlet and outlet louvres and air flow are not obstructed in any way at any time.

SAFETY

This water heater is supplied with a thermostat, two over-temperature energy cut-outs and a combination temperature pressure relief valve. These devices must not be tampered with or removed. The water heater must not be operated unless each of these devices is fitted and is in working order.

The operation of the over-temperature cut-out on the thermostat indicates a possibly dangerous situation. If the over-temperature cut-out operates, it must not be reset and the water heater must be serviced by an authorised or qualified person.

If the electrical supply conduit to the water heater is damaged, it must be replaced by an authorised person in order to avoid a hazard. Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

The warranty can become void if relief valves or other safety devices are tampered with or if the installation is not in accordance with these instructions.

TO TURN OFF THE WATER HEATER

If you plan to be away from home for only a few nights, we suggest you leave the water heater switched on. If it is necessary to turn off the water heater:

- Switch off the electrical supply at the isolating switch to the water heater.
- Close the cold water isolation valve at the inlet to the water heater.

TO TURN ON THE WATER HEATER

- Open the cold water isolation valve fully on the cold water line to the water heater.
- Switch on the electrical supply at the isolating switch to the water heater.

The heat pump may take up to 30 seconds to commence operating when the power supply is switched on. The heat pump will only operate when the water in the storage tank requires heating, the heat pump compressor is cool and power is available at the water heater. If the ambient air temperature is below the minimum operating temperature of 5°C and the system calls for heating, the booster heating unit will operate instead.

When the heat pump is operating, the system may switch to the booster heating unit if it detects that the ambient air temperature is below the minimum operating temperature of 5°C. It may also switch back to heat pump operation from the booster heating unit if it detects the ambient air temperature has moved back to within the heat pump's operating temperature range.

Note: The heat pump may not turn on after having just completed a heating cycle and more hot water is drawn from the water heater. The heat pump will wait until the compressor has cooled down and the conditions for start up are favourable, in order to protect the compressor from damage. This may take up to 20 minutes from the last heating cycle.

TIMER CONTROL

A timer can be installed in the electrical circuit to the water heater. The timer must be weatherproof if it is installed outdoors.

It may be desirable for the water heater not to operate between certain hours, such as during the peak period when connected to a Time of Use electricity supply due to a more expensive tariff rate applying. A timer will affect the operating times of both the heat pump circuit and the booster heating unit.

Note: The 551 310 model heat pump water heater is recommended for connection to a minimum 16 hour per day power supply.

GOING ON HOLIDAYS

If you plan to be away from home for a few nights, we suggest you leave the water heater switched on. If you plan to be away for a longer period, conserve energy by switching off the isolating switch to the water heater (refer to "To Turn Off The Water Heater" on page 6).

HOW DO I KNOW IF THE WATER HEATER IS INSTALLED CORRECTLY?

Installation requirements are shown on page 19. The water heater must be installed by an authorised person and the installation must comply with Standards AS/NZS 3500.4, AS/NZS 3000 and all local codes and regulatory authority requirements. In New Zealand, the installation must conform with Clause G12 of the New Zealand Building Code.

DOES THE WATER CHEMISTRY AFFECT THE WATER HEATER?

The water heater is suitable for most public water supplies, however some water chemistries may have detrimental effects on the water heater and fittings. **Refer to "Water Supplies" on page 9**. If you are not sure, have your water chemistry checked against the conditions described on pages 9 to 10.

HOW LONG WILL THE WATER HEATER LAST?

There are a number of factors that will affect the length of service the water heater will provide. These include the water chemistry, the water pressure, temperature (inlet and outlet) and the water usage pattern. However, your water heater is supported by a comprehensive warranty (refer to page 40).

ENVIRONMENT

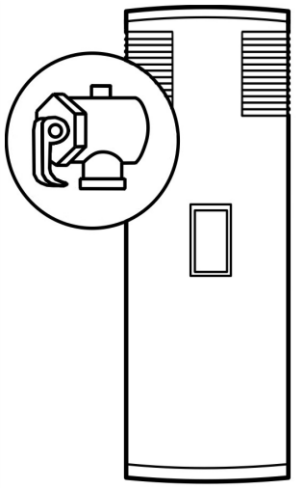
At the end of the service life of the heat pump water heater and prior to the water heater being disposed of, a person qualified to work with refrigerants must recover the refrigerant from within the sealed system. The refrigerant must not be vented to atmosphere. Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

REGULAR CARE

TEMPERATURE PRESSURE RELIEF VALVE

This valve is near the top of the water heater and is essential for its safe operation. It is possible for the valve to release a little water through the drain line during each heating period. This occurs as the water is heated and expands by approximately 1/50 of its volume.

Continuous leakage of water from the valve and its drain line may indicate a problem with the water heater (refer to "Temperature Pressure Relief Valve Running" on page 13).



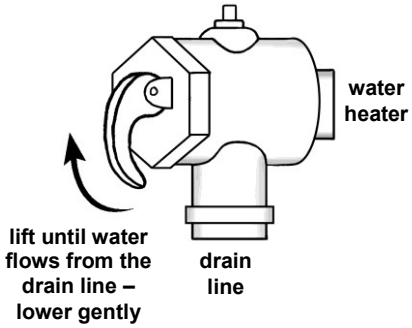
⚠ **Warning:** Never block the outlet of this valve or its drain line for any reason.

Operate the easing lever on the temperature pressure relief valve once every six months. **It is very important you raise and lower the lever gently.**

⚠ **DANGER:** Failure to do this may result in the water heater cylinder failing, or under certain circumstances, exploding.

If water does not flow freely from the drain line when the lever is lifted, then the water heater should be checked by Rheem Service or their nearest Accredited Service Agent.

The temperature pressure relief valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits (refer to "Water Supplies" on page 9).



EXPANSION CONTROL VALVE

In many areas, including South Australia, Western Australia and scaling water areas, an expansion control valve is fitted to the cold water line to the water heater. The expansion control valve may discharge a small quantity of water from its drain line during the heating period instead of the temperature pressure relief valve on the water heater.

Operate the easing lever on the expansion control valve once every six months. **It is very important you raise and lower the lever gently.** The expansion control valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits.

HEAT PUMP SYSTEM

It is recommended the evaporator and refrigeration system is checked every five years. In particularly dusty environments, it may be necessary to have the heat pump system checked and cleaned of dust and residue on a more regular basis.

WATER SUPPLIES

This water heater must be installed in accordance with this advice to be covered by the warranty.

This water heater is manufactured to suit the water conditions of most public reticulated water supplies. However, there are some known water chemistries which can have detrimental effects on the water heater and its operation and / or life expectancy. If you are unsure of your water chemistry, you may be able to obtain information from your local water supply authority. This water heater should only be connected to a water supply which complies with these guidelines for the water heater warranty to apply.

CHANGE OF WATER SUPPLY

The changing or alternating from one water supply to another can have a detrimental effect on the operation and / or life expectation of a number of components in this water heater.

Where there is a changeover from one water supply to another, e.g. a rainwater tank supply, bore water supply, desalinated water supply, public reticulated water supply or water brought in from another supply, then water chemistry information should be sought from the supplier or it should be tested to ensure the water supply meets the requirements given in these guidelines for warranty to apply.

ANODE

The vitreous enamel lined cylinder of the water heater is only covered by warranty when the total dissolved solids (TDS) content in the water is less than 2500 mg/L and when the correct colour coded anode is installed. The use of an incorrect colour coded anode will void the warranty and may shorten the life of the storage tank.

The correct colour coded anode is as shown in the following table:

Total Dissolved Solids	Anode colour code
0 – 40 mg/L	Green
40 – 150 mg/L	Green or Black
150 – 400 mg/L	Black
400 – 600 mg/L	Black or Blue
600 – 2500 mg/L	Blue
2500 mg/L +	Blue (no cylinder warranty)

The changing of anodes must be carried out by a plumber or authorised service person.

Note: Some water analysis reports may state the conductivity of the water rather than the level of total dissolved solids. Conductivity, measured in microsiemens per centimetre (μS / cm), is directly proportional to the TDS content of the water. TDS, in mg / L, is approximately 70% of the conductivity in μS / cm.

ANODE INSPECTION

The anode installed in the water heater will slowly dissipate whilst protecting the cylinder. The life of the cylinder may be extended by arranging for an authorised person to inspect the anode and replace if required.

The suggested maximum time after installation when the anode should be inspected for this heat pump water heater is 8 years.

For water supplies which are either softened, desalinated or where the water supply may alternate between a water tank and a reticulated public supply or another supply, it is recommended the anode be inspected 3 years earlier than shown.

CAUTION

If the water supply has a TDS greater than 150 mg/L and a green anode has not been changed to a black anode, or if the TDS is greater than 600 mg/L and the anode has not been changed to a blue anode, there is the possibility the anode may become overactive and hydrogen gas could accumulate in the top of the water heater during long periods of no use. In areas where this is likely to occur, the installer should instruct the householder on how to dissipate the gas safely.

If, under these conditions, the water heater has not been used for two or more weeks the following procedure should be carried out before using any electrical appliances (automatic washing machines and dishwashers) which are connected to the hot water supply.

The hydrogen, which is highly flammable, should be vented safely by opening a hot tap and allowing the water to flow. There should be no smoking or naked flame near the tap whilst it is turned on. Any hydrogen gas will be dissipated. This is indicated by an unusual spurting of the water from the tap. Once the water runs freely, any hydrogen in the system will have been released.

SATURATION INDEX

The saturation index (SI) is used as a measure of the water's corrosive or scaling properties.

Where the saturation index is less than –1.0, the water is very corrosive and warranty does not apply to the water heater. In a corrosive water supply, the water can attack copper parts and cause them to fail.

Where the saturation index exceeds +0.40, the water is very scaling and warranty does not apply to the water heater.

Water which is scaling may be treated with a water softening device to reduce the saturation index of the water.

CHLORIDE AND PH

Where the chloride level exceeds 250 mg/L warranty does not apply to the water heater. In a high chloride water supply, the water can corrode stainless steel parts and cause them to fail.

Where the pH is less than 6.0 warranty does not apply to the water heater. pH is a measure of whether the water is alkaline or acid. In an acidic water supply, the water can attack stainless steel parts and cause them to fail.

Water with a pH less than 6.0 may be treated to raise the pH. The water supply from a rainwater tank in a metropolitan area is likely to be corrosive due to the dissolution of atmospheric contaminants.

SUMMARY OF WATER CHEMISTRY ADVICE AFFECTING WARRANTY

The warranty of this water heater does not apply on the components listed below if the water heater is connected at any time to a water supply with water chemistry of:

Water Chemistry	Component
Total Dissolved Solids (TDS) > 2500 mg/L	water heater cylinder
Total Dissolved Solids (TDS) not suitable for anode type	water heater cylinder
Saturation Index (SI) < -1.0	water heater
Saturation Index (SI) > +0.4	water heater
Chloride > 250 mg/L	water heater
pH < 6.0	water heater

SAVE A SERVICE CALL

Check the items below before making a service call. You will be charged for attending to any condition or fault that is not related to manufacture or failure of a part.

NOT ENOUGH HOT WATER (OR NO HOT WATER)

- **Is the electricity switched on?**
  Inspect the isolating switch marked “HOT WATER” or “WATER HEATER” at the switchboard and the isolating switch (if one is installed) at the water heater and ensure they are turned on.

  Check the fuse marked “HOT WATER” or “WATER HEATER” at the switchboard.

- **Is a timer installed?**
  If a timer has been installed, ensure sufficient time has been allowed to reheat the storage tank.

- **Are you using more hot water than you think?**
  Is one outlet (especially the shower) using more hot water than you think?

  Very often it is not realised the amount of hot water used, particularly when showering. Carefully review the family’s hot water usage. As you have installed an energy saving appliance, energy saving should also be practised in the home.

  Adjust your water usage pattern to take advantage of maximum energy gains. Have your plumber install a flow control valve to each shower outlet to reduce water usage.

- **Heat pump fault**
  Has the heat pump developed a fault?

  The heat pump will not operate and the water heater will switch to backup heating mode. The boost capacity of the heating unit in backup heating mode is 110 litres.

  Refer to “Heat Pump Is Not Operating” on page 12.

- **Temperature pressure relief valve running**
  Is the relief valve discharging too much water?

  Refer to “Temperature Pressure Relief Valve Running” on page 13.

- **Water heater size**
  Do you have the correct size water heater for your requirements?

  The sizing guide in the sales literature and on the Rheem website (www.rheem.com.au) suggests average sizes that may be needed.

WATER NOT HOT ENOUGH

You may find that due to heavy hot water usage the water temperature may be lower than normally expected, due to insufficient heating time being allowed. You will need to carefully plan your use of the hot water on such occasions.

WATER TOO HOT

The water heater during heat pump operation and booster heating mode will heat the water to a temperature of 60°C. If a heat pump component has developed a fault condition, the heat pump will not operate and the water heater will switch to backup heating mode to ensure a supply of hot water.

In backup heating mode, the booster heating unit and its controlling thermostat will operate if heating of the water is required, regardless of the ambient air temperature. The water heater, during backup heating mode will heat the water to a temperature of 70°C. The boost capacity of the heating unit in backup heating mode is 110 litres.

Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

HEAT PUMP IS NOT OPERATING

- **Time controlled power supply**
  If the water heater is connected to a time controlled power supply, then during periods of no power supply at the water heater the heat pump and booster heating unit will not operate.

  This is not a fault condition, but a result of no power being available to operate the water heater.

- **Heat pump operating range**
  The heat pump will not operate for extended periods when the ambient air temperature is outside the heat pump's operating range. The heat pump will operate when the ambient air temperature is 5°C or higher. The booster heating unit will operate when the ambient air temperature falls below 5°C, if heating is required.

  The boost capacity of the booster heating unit in booster heating mode is 220 litres and the water will be heated to 60°C during these periods.

  Heating of the water by the heat pump will occur when the ambient air temperature returns to within the heat pump's operating range.

- **Thermal cut out activated**
  Has the thermal cut out for the heat pump compressor activated?

  The refrigeration circuit is protected by a thermal sensor. This will activate a thermal cut out in the event of thermal surges or excessive heat in the refrigeration system.

  If the thermal cut out has activated, the heat pump will not operate. The water heater will switch to booster heating mode to ensure a supply of hot water. If heating of the water is required, the booster heating unit will operate regardless of the ambient air temperature. In booster heating mode, the boost capacity of the heating unit is 220 litres and the water will be heated to 60°C.

  The thermal cut out will automatically reset itself when the compressor cools down.

  To check whether there may be a problem, open a hot tap and allow to run for ten to fifteen minutes. The heat pump, if working properly, will activate and continue operating to heat the water. Close the hot tap when the heat pump begins to operate.

  However, if the heat pump deactivates within five minutes, there may be a problem. Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

- **Heat pump fault**
  Has the heat pump developed a fault?

  If the heat pump has developed a fault condition, the heat pump will not operate and the water heater will switch to backup heating mode to ensure a supply of hot water.

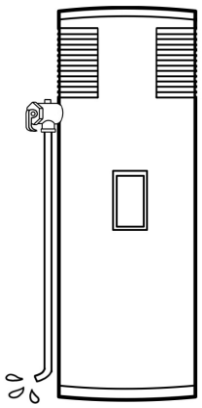
  In backup heating mode, the booster heating unit and its controlling thermostat will operate if heating of the water is required, regardless of the ambient air temperature. The water heater, during backup heating mode will heat the water to a temperature of 70°C. The boost capacity of the heating unit in backup heating mode is 110 litres.

  Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

EXPANSION CONTROL VALVE RUNNING

If an expansion control valve is fitted in the cold water line to the water heater (refer to page 28) it may discharge a small quantity of water instead of the temperature pressure relief valve on the water heater. The benefit is that energy is conserved as the discharged water is cooler.

TEMPERATURE PRESSURE RELIEF VALVE RUNNING



- **Normal Operation**
  It is normal and desirable this valve allows a small quantity of water to escape during the heating cycle. However, if it discharges more than a bucket full of water in 24 hours, there may be another problem.
- **Continuous dribble**
  Try gently raising the easing lever on the relief valve for a few seconds (refer to "Temperature Pressure Relief Valve" on page 8). This may dislodge a small particle of foreign matter and clear the fault. Release the lever gently.
- **Steady flows for long periods (often at night)**
  This may indicate the mains water pressure sometimes rises above the designed pressure of the water heater. Ask your installing plumber to fit a pressure limiting valve.

  ⚠ **Warning:** Never replace the relief valve with one of a higher pressure rating.
- **Heavy flows of hot water until the water heater is cold - then stops until water reheats**
  The water heater **must** be switched off at the isolating switch or switchboard. Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

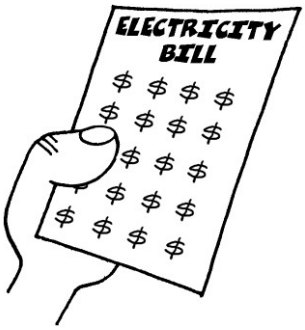
HIGHER THAN EXPECTED ELECTRICITY BILLS

With the installation of your new air sourced heat pump water heater, maximum electrical energy savings can be achieved. Should you at any time, feel your electricity account is higher than expected, we suggest you check the following points:

- Is the water heater operating in backup heating mode?

  If there is a fault condition with the heat pump system, the water heater will default to backup heating mode to ensure a supply of hot water. If the water is being heated to a temperature of 70°C, this will indicate there may be a fault with the system.

  Refer to "Heat Pump Is Not Operating" on page 12.



- Is the relief valve running excessively?

  Refer to "Temperature Pressure Relief Valve Running" on page 13.
- Is one outlet (especially the shower) using more hot water than you think?

  Refer to "Not Enough Hot Water" on page 11.
- Is there a leaking hot water pipe, dripping hot water tap, etc?

  Even a small leak will waste a surprising quantity of hot water and energy. Replace faulty tap washers, and have your plumber rectify any leaking pipe work.
- Has there been an increase in hot water usage?

  An increase in hot water usage will result in an increase in heat pump operation.
- Has your water heating tariff rate been increased by your electricity retailer since your previous account?
- Is the heat pump water heater on the same tariff as the water heater replaced?

  The impact on an electricity account will depend upon the tariff arrangement of the water heater replaced and where you live. Contact your energy provider for more information on tariff arrangements and cost comparisons.
- Prolonged periods of use when the ambient air temperature is outside of the heat pump's operating range will increase the amount of boosting and increase running costs.

IF YOU HAVE CHECKED ALL THE FOREGOING AND STILL BELIEVE YOU NEED ASSISTANCE, PHONE RHEEM SERVICE OR THEIR NEAREST ACCREDITED SERVICE AGENT.

INSTALLATION

THIS WATER HEATER IS FOR OUTDOOR INSTALLATON ONLY.
THIS WATER HEATER IS NOT SUITABLE FOR POOL HEATING.

The installation must comply with the requirements of AS/NZS 3500.4, AS/NZS 3000 and all local codes and regulatory authority requirements. In New Zealand, the installation must conform with Clause G12 of the New Zealand Building Code.

The 551 310 model heat pump water heater is recommended for connection to a minimum 16 hour per day power supply.

A Rheem heat pump water heater consumes less energy than an electric water heater. The impact on an electricity account will depend on the tariff arrangement of the water heater replaced and the installation location. Contact the energy provider for more information on tariff arrangements and cost comparisons.

All packaging materials must be removed from the water heater prior to its installation. This includes the removal of the cardboard base of the carton from the underside of the water heater.

STORAGE TANK AND HEAT PUMP MODULE

The heat pump water heater is made of two main components, the storage tank and the heat pump module. For transport and handling (weight) purposes both items are shipped separately and designed to be assembled at the installation site. The water heater must not be operated until both components are assembled. Refer to "Heat Pump and Tank Assembly" on page 21.

Take care when handling the heat pump module. The jacket of the heat pump module needs to be handled gently so as not to cause damage.

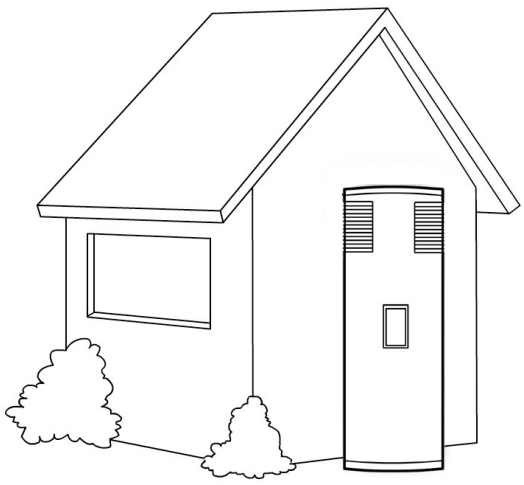
Do not tilt the heat pump module or the heat pump and storage tank assembly more than 45° from the vertical. This will unsettle the refrigerant gas and compressor lubricating oil. If the heat pump module or heat pump and storage tank assembly has been tilted more than 45° from the vertical during handling, it will need one hour to settle before the power to the water heater can be switched on, otherwise damage to the compressor may result.

The heat pump module and storage tank can be assembled off site if required and then transported to the installation site. Care must be taken during transportation and handling as the assembly will be top heavy.

WATER HEATER LOCATION

The water heater is suitable for outdoor installation only. The water heater should be installed close to the most frequently used outlet and its position chosen with noise, safety and service in mind. Make sure people (particularly children) will not accidentally touch the air inlet and outlet louvres and that they are clear of obstructions and shrubbery.

It is advisable to install the water heater away from bedroom or living room windows as the system controls can generate a level of noise whilst they are operating. Consider the location in relation to neighbours' bedrooms and living room windows.



Clearance must be allowed for servicing of the water heater. The water heater must be accessible without the use of a ladder or scaffold. Make sure the temperature pressure relief valve lever is accessible and the top and front cover, air inlet and outlet louvres, system controls and thermostat can be removed for service.

You must be able to read the information on the rating plate. If possible leave headroom of one water heater height so the anode can be inspected or replaced. Remember you may have to remove the entire water heater later for servicing.

It is recommended the heat pump water heater be installed at ground or floor level and must stand vertically upright, supported by a level slab or solid base. The base of the water heater is made of corrosion resistant material, and it may be placed directly in contact with the supporting surface. It is not necessary to allow for free air circulation under the base of the water heater.

Note: The water heater should not be placed in direct contact with a concrete surface that is less than two months old and not fully cured as this may attack the metal coating of the water heater base. A moisture barrier should be used between the two surfaces in this instance.

The water heater must be installed with a clearance of at least 100 mm from a wall. A clearance of at least 300 mm is required perpendicular from both the air inlet and outlet louvres to any wall or obstruction. Refer to the dimensions diagram on page 20.

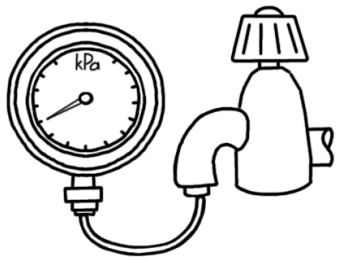
The water heater must not be installed in an area with a corrosive atmosphere where chemicals are stored or where aerosol propellants are released. Remember the air may be safe to breathe, but the chemicals may attack the materials used in the heat pump system.

MAINS WATER SUPPLY

Where the mains water supply pressure exceeds that shown in the table below, an approved pressure limiting valve is required and should be fitted as shown in the installation diagram (refer to diagram on page 28).

Model	310
Relief valve setting	1000 kPa
Expansion control valve setting *	850 kPa
Max. mains supply pressure	
With expansion control valve	680 kPa
Without expansion control valve	800 kPa
Min. mains supply pressure	200 kPa

* Expansion control valve not supplied with the water heater.



TANK WATER SUPPLY

If the water heater is supplied with water from a tank supply and a minimum water supply pressure of 200 kPa at the water heater cannot be achieved, then a pressure pump system must be installed to allow the heat pump circulator to operate and avoid air locks in the circuit. Care must be taken to avoid air locks. The cold water line from the supply tank should be adequately sized and fitted with a full flow gate valve or ball valve.

PURGING AIR FROM THE SYSTEM

The water heater system must be purged of air prior to operation, using the air bleed valve supplied on the heat pump module. Failure to bleed the air out of the pipe work within the heat pump module will result in non-operation of the circulator and failure of the heat pump to operate due to overheating.

HOT WATER DELIVERY

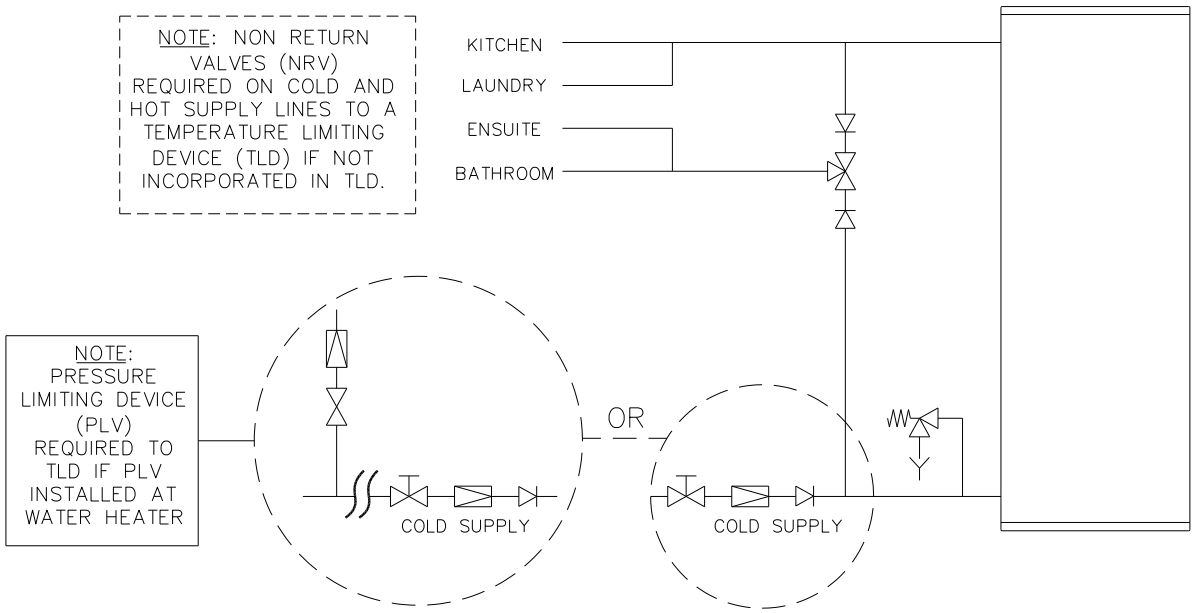
This water heater can deliver water at temperatures which can cause scalding.

It is necessary and we recommend that a temperature limiting device be fitted between the water heater and the hot water outlets in any ablution area such as a bathroom or ensuite, to reduce the risk of scalding. The installing plumber may have a legal obligation to ensure the installation of this water heater meets the delivery water temperature requirements of AS/NZS 3500.4 so that scalding water temperatures are not delivered to a bathroom, ensuite or other ablution area.

The temperature limiting device used with a solar water heater should have a specified minimum temperature differential, i.e. between the hot water inlet and the tempered water outlet, of no greater than 10°C.

Where a temperature limiting device is installed adjacent to the water heater, the cold water line to the temperature limiting device can be branched off the cold water line either before or after the isolation valve, pressure limiting valve and non return valve to the water heater. If an expansion control valve is required, it must always be installed after the non return valve and be the last valve prior to the water heater.

If a pressure limiting valve is installed on the cold water line to the water heater and the cold water line to a temperature limiting device branches off before this valve or from another cold water line in the premises, then a pressure limiting valve of an equal pressure setting may be required prior to the temperature limiting device.



Two Temperature Zones Using a Temperature Limiting Device

CIRCULATED HOT WATER FLOW AND RETURN SYSTEM

A 551 310 model heat pump water heater should not be installed as part of a circulated hot water flow and return system in a building.

If a circulated flow and return system is required, it is necessary to bypass the heat pump water heater and install a secondary water heater connected to the hot water flow and return line and supplied from the heat pump water heater. The secondary water heater must be a storage water heater able to provide a hot water outlet temperature of at least 60°C. **Note:** The thermostat must always be set to at least 60°C. Refer to the diagram on page 17.

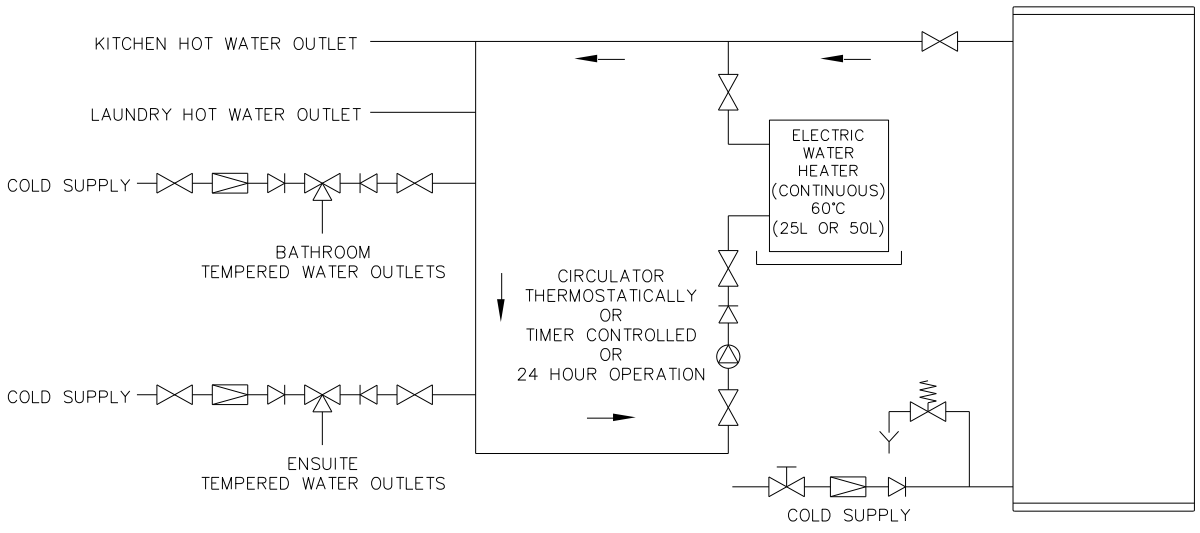
Temperature Limiting Device

A temperature limiting device cannot be installed in circulated hot water flow and return pipe work. The tempered water from a temperature limiting device cannot be circulated. Where a circulated hot water flow and return system is required in a building, a temperature limiting device can only be installed on a dead leg, branching off the circulated hot water flow and return pipe.

If circulated tempered water were to be returned back to the water heater, depending on the location of the return line connection on the water supply line to the water heater, then either:

- water will be supplied to the cold water inlet of the temperature limiting device at a temperature exceeding the maximum recommended water supply temperature, or
- when the hot taps are closed no water will be supplied to the cold water inlet of the temperature limiting device whilst hot water will continue to be supplied to the hot water inlet of the temperature limiting device.

These conditions may result in either water at a temperature exceeding the requirements of AS/NZS 3500.4 being delivered to the hot water outlets in the ablution areas, or the device closing completely and not delivering water at all, or the device failing. Under either condition, the operation and performance of the device cannot be guaranteed.



NOTE: A PLV IS REQUIRED TO BE INSTALLED ON THE COLD SUPPLY LINE TO THE TEMPERING VALVE IF A PLV IS INSTALLED ON THE COLD SUPPLY LINE TO THE WATER HEATER.

Circulated Hot Water Flow and Return System – Heat Pump Water Heater

REDUCING HEAT LOSSES

The cold water line to and the hot water line from the water heater must be insulated in accordance with the requirements of AS/NZS 3500.4. The insulation must be weatherproof and UV resistant if exposed.

ANODE TYPES

The vitreous enamel lined cylinder of the water heater is only covered by warranty when the total dissolved solids (TDS) content in the water is less than 2500 mg/L and when the correct colour coded anode is installed. The use of an incorrect colour coded anode will void the warranty and may shorten the life of the storage tank. The black anode is typically fitted as standard (refer to “Anode” on page 9).

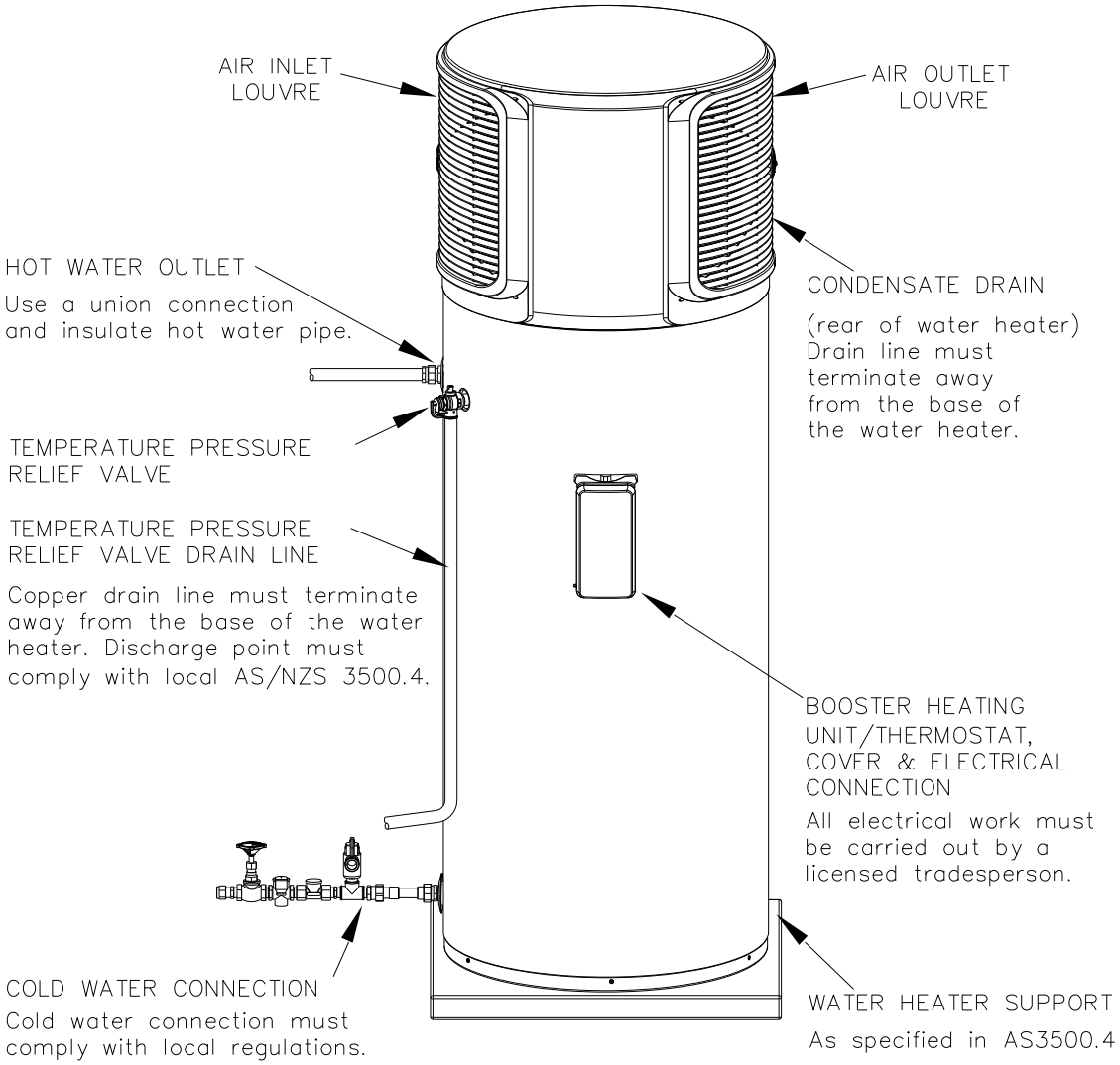
If an incorrect anode is used, there is also the possibility the anode may become overactive and hydrogen gas could accumulate in the top of the water heater during long periods of no use. In areas where this is likely to occur, the installer should instruct the householder on how to dissipate the gas safely (refer to “Caution” on page 10).

SADDLING - PIPE WORK

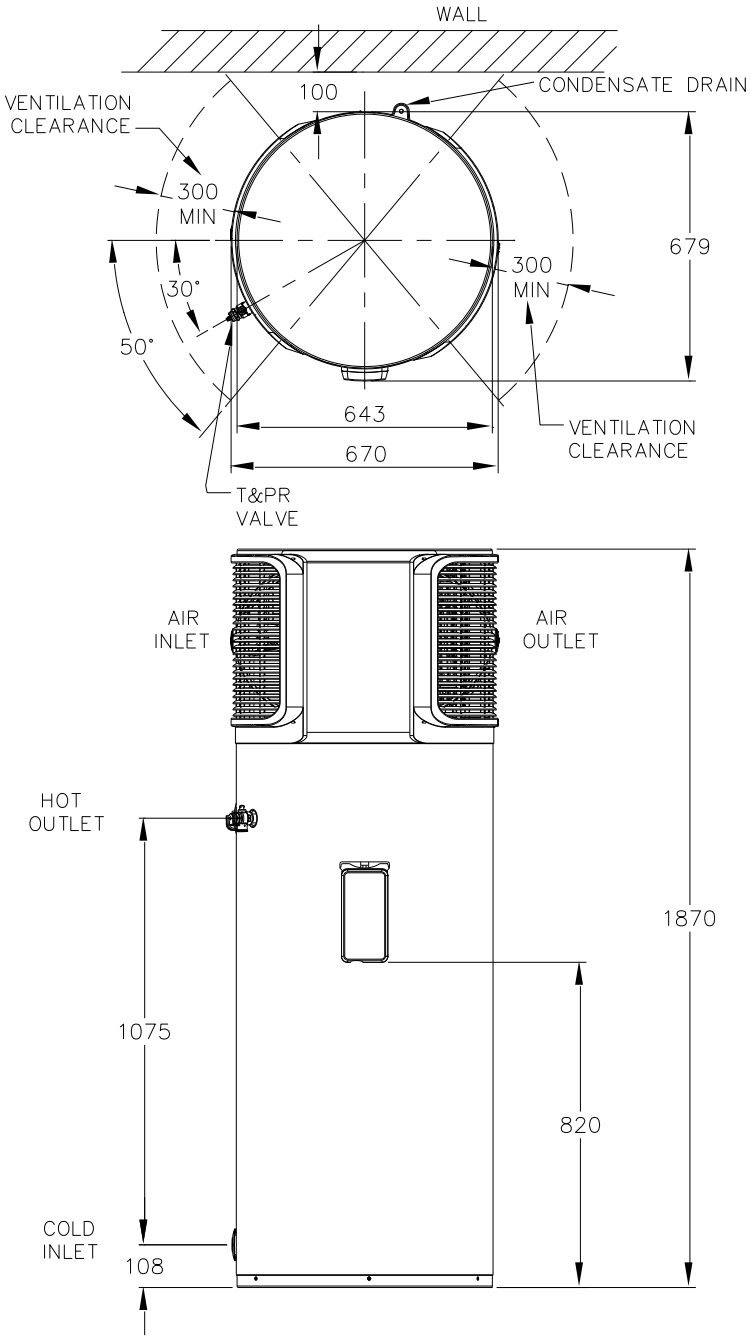
To prevent damage to the cylinder when attaching pipe clips or saddles to the water heater jacket, we recommend the use of self-drilling screws with a maximum length of 13 mm. Should pre drilling be required, extreme caution must be observed when penetrating the jacket of the water heater.

Note: Damage to the cylinder as a result of saddling to the jacket will void the warranty.

TYPICAL INSTALLATON – OUTDOOR LOCATION



DIMENSIONS AND TECHNICAL DATA



System number		551 310
Model Number	1.8 kW	551 310 04
	2.4 kW	551 310 05
	3.6 kW	551 310 07

Part numbers	
Tank only 1.8 kW	T551 310 04
Tank only 2.4 kW	T551 310 05
Tank only 3.6 kW	T551 310 07
Heat pump module	180532

Maximum rated power input	3600 watts
Rated heat pump power input	1300 watts
Booster element rating	1800, 2400 or 3600 watts
Refrigerant type	R134a
Refrigerant circuit pressure	3000 kPa

Storage capacity	310 litres
Boost capacity	220 litres
Mass empty - total	135 kg
Storage tank	87 kg
Heat pump module	48 kg
Mass full - total	445 kg

Specifications are subject to change with ongoing product improvements.

HEAT PUMP AND TANK ASSEMBLY

STORAGE TANK AND HEAT PUMP MODULE

The heat pump water heater is made of two main components, the storage tank and the heat pump module. For transport and handling (weight) purposes both items are shipped separately and designed to be assembled at the installation site. The water heater must not be operated until both components are assembled.

HEAT PUMP MODULE

The heat pump module is to be mounted on the top of the storage tank. It is designed so that it can be lifted to the top of the storage tank by two people. It is shipped in a box containing two lifting bars that are inserted into the heat pump module to facilitate lifting.

CAUTION: The heat pump module weighs approximately 48 kg. Use the lifting bars provided to lift and mount to the top of the storage tank. Good lifting practice should be followed.

There are two flexible hoses provided inside the heat pump module. The flexible hoses are to be fixed to the two water fittings on the top of the storage tank during the assembly procedure.

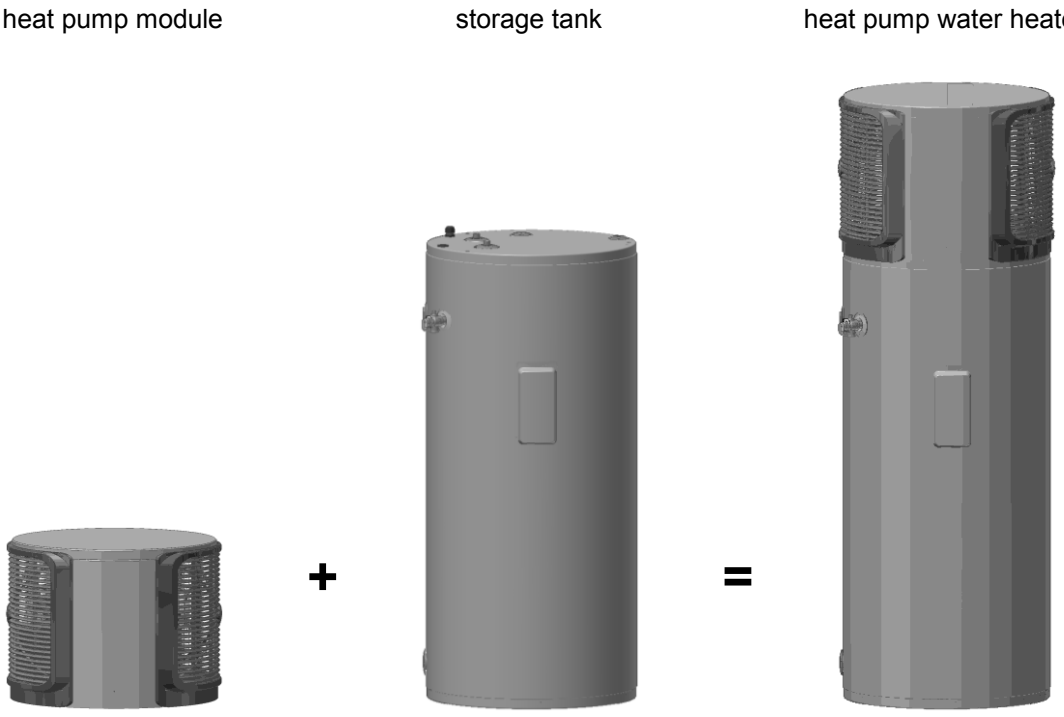
There are two connection points located on the control board behind the electrical cover in the heat pump module to which the power cable and tank sensor cable from the storage tank are connected during the assembly procedure.

STORAGE TANK

The storage tank must be fully supported by a level slab or solid base. The storage tank is designed to support the heat pump module.

There are two water fittings located at the top of the storage tank to which flexible hoses from the heat pump module are connected during the assembly procedure.

A power cable and a tank sensor cable protrude from the top of the storage tank. These are to be connected to the control board behind the electrical cover in the heat pump module during the assembly procedure.



ASSEMBLY PROCEDURE

⚠ **Warning:** The heat pump must be assembled, plumbed and filled with water prior to power being connected and switched on.

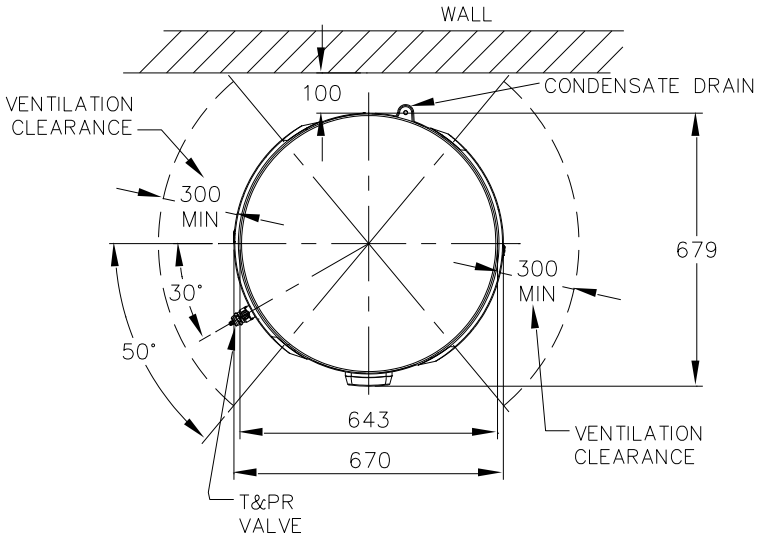
The following procedure should be followed to properly lift, place and connect the heat pump module onto the storage tank:

1. **Storage Tank:** Remove all packaging including the carton base from the storage tank and position in its intended location, supported by a level slab or solid base.

   The water connections are on the left hand side and should be parallel to the wall, unless the water heater is to be installed in a manifolded bank of water heaters. If the water heater is installed in a manifolded bank of water heaters, refer to "Multiple Installations" on page 32 for information on the correct storage tank orientation.

   The storage tank is to be positioned at least 100 mm from the wall and such that when the heat pump module is in position on top of the storage tank, there is a clearance of at least 300 mm perpendicular from both the air inlet and outlet louvres to any wall or obstruction.

   - Ensure the power cable and tank sensor cable are hanging down the side of and not sitting on top of the storage tank before lifting the heat pump module into position.



Step 1
position storage tank at least 100 mm from the wall and allow for at least 300 mm ventilation clearance

2. **Heat Pump Module:** Place the heat pump module in front of the storage tank and open the top flaps of the carton.

   Two (2) lifting bars are housed in a recess in the cardboard layer on top of the heat pump module.

   - Remove the lifting bars and set them aside.
   - Remove the carton from the heat pump module.

     Be aware the carton sides have flaps, which tuck under the carton base of the heat pump module.

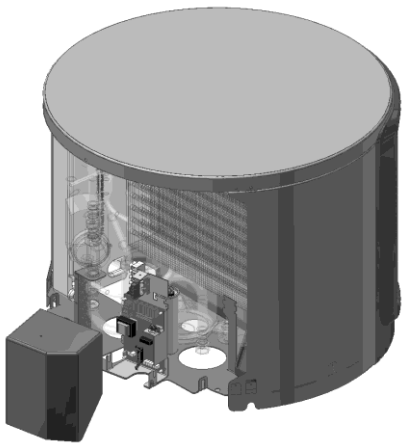
3. **Air Louvre Removal:** Using a Phillips head screw driver, remove the six (6) screws from each of the two air louvres (twelve (12) screws in total).

   - Remove the louvres from the heat pump module.

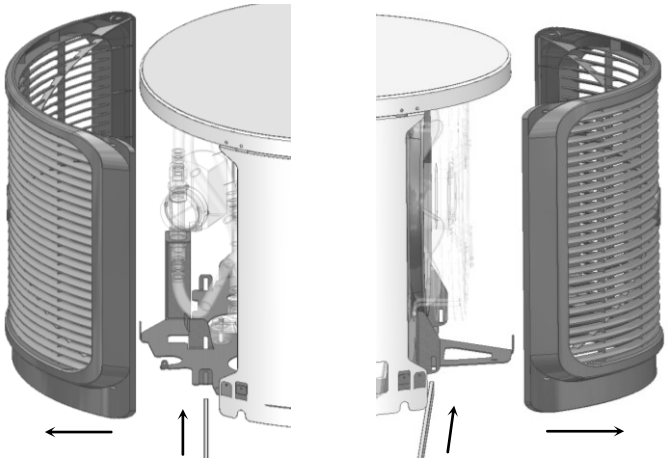
4. **Electrical Cover:** Remove the mounting screw from the side of the electrical cover.

   - Gently remove the cover.

     The electrical cover needs to be handled gently so as not to damage the electronic controls located behind the electrical cover.



Step 4
remove electrical cover



Steps 3 and 5
remove louvres and insert lifting bars into the slots provided

5. **Lifting Bars:** Insert the two (2) lifting bars into the slots at the front of the heat pump module chassis and carefully push through to engage the slots at the rear.

   Take care not to catch any of the wiring or hoses in the heat pump module.

   Leave sufficient overhang at either end to enable a firm and safe grip for lifting the heat pump module onto the top of the storage tank.

6. **Heat Pump Module Placement:** Using **two** people, one person on each lifting bar, lift the heat pump module and place it on the top of the storage tank.

   It is recommended to place the hands under the bar to enable the lift in a curl action.

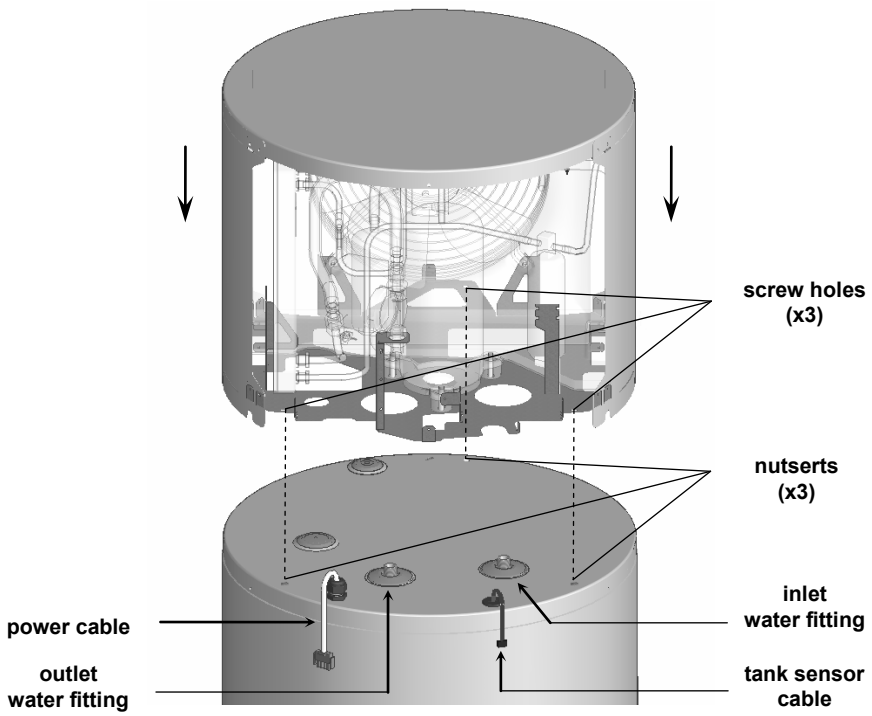
   - Ensure the two water fittings on the storage tank pass through the openings marked “INLET” and “OUTLET” on the heat pump module chassis.
   - Ensure the three screw holes in the bottom plate of the chassis are lined up with the three nutserts in the top of the storage tank.

   Take care to avoid resting the heat pump module on the power cable or the tank sensor cable.

   Final positioning is best undertaken with the lifting bars still in position.

   CAUTION: The heat pump module weighs approximately 48 kg. This operation should be performed carefully by two people and good lifting practice should be followed.

7. **Heat Pump Module Attachment:** Remove the two (2) lifting bars and attach the heat pump module to the storage tank with the three (3) M6 screws provided with the heat pump module.

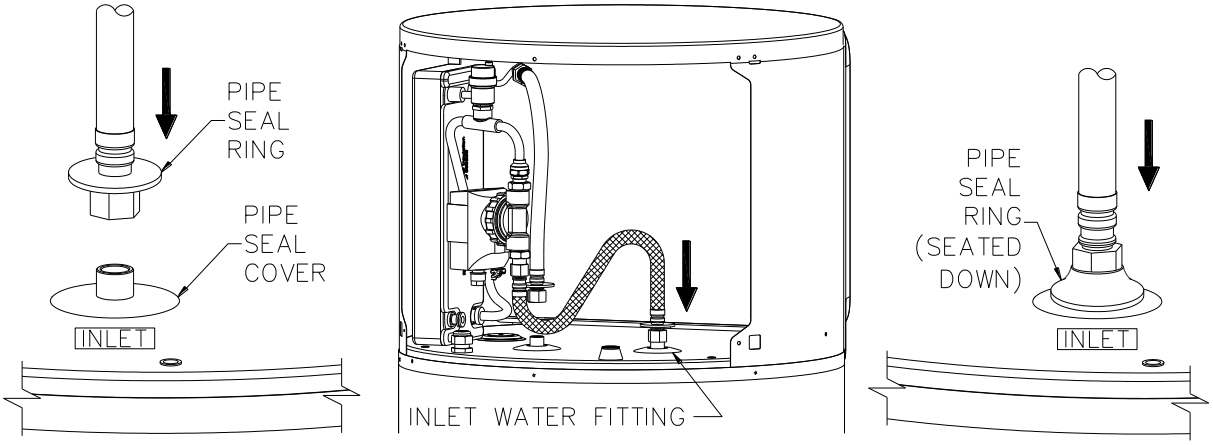


Steps 6 and 7
install heat pump module to storage tank

8. **Water Fitting Caps:** Remove the caps from the inlet and outlet water fittings on the top of the storage tank. These may be unscrewed or cut from the fittings if necessary.

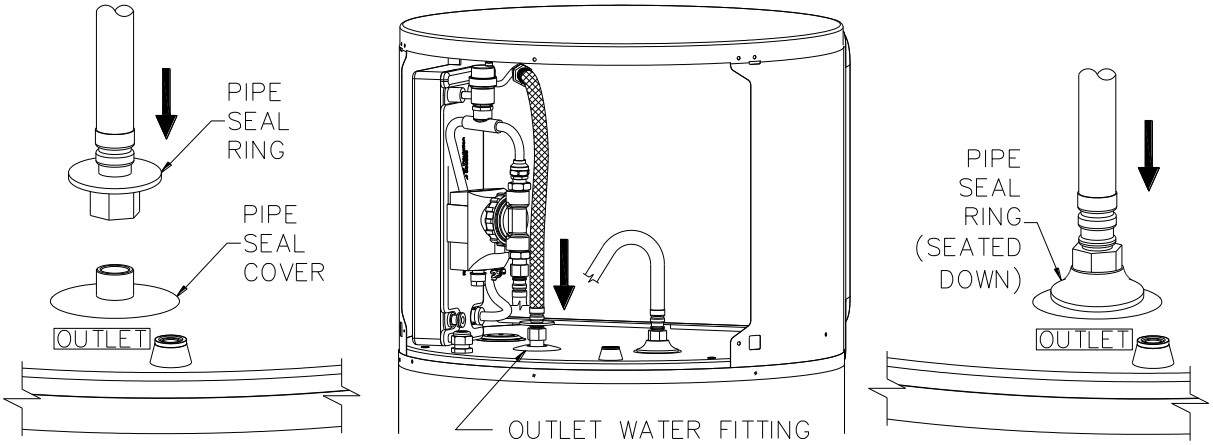
   Take care not to loosen the fittings or damage the threads whilst removing the caps.

9. **Inlet Flexible Braided Hose:** Attach the flexible braided hose marked “INLET” to the water fitting marked “INLET”.
   - Tighten the swivel nut on the hose using a 24 mm spanner.
   - Push down the pipe seal ring to seat over the swivel nut and against the pipe seal cover.



Step 9
attach inlet water hose and seat pipe seal ring

10. **Outlet Flexible Braided Hose:** Attach the flexible braided hose marked “OUTLET” to the water fitting marked “OUTLET”.
   - Tighten the swivel nut on the hose using a 24 mm spanner.
   - Push down the pipe seal ring to seat over the swivel nut and against the pipe seal cover.

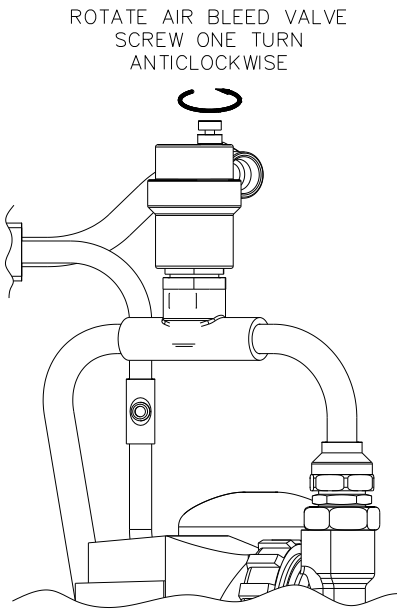


Step 10
attach outlet water hose and seat pipe seal ring

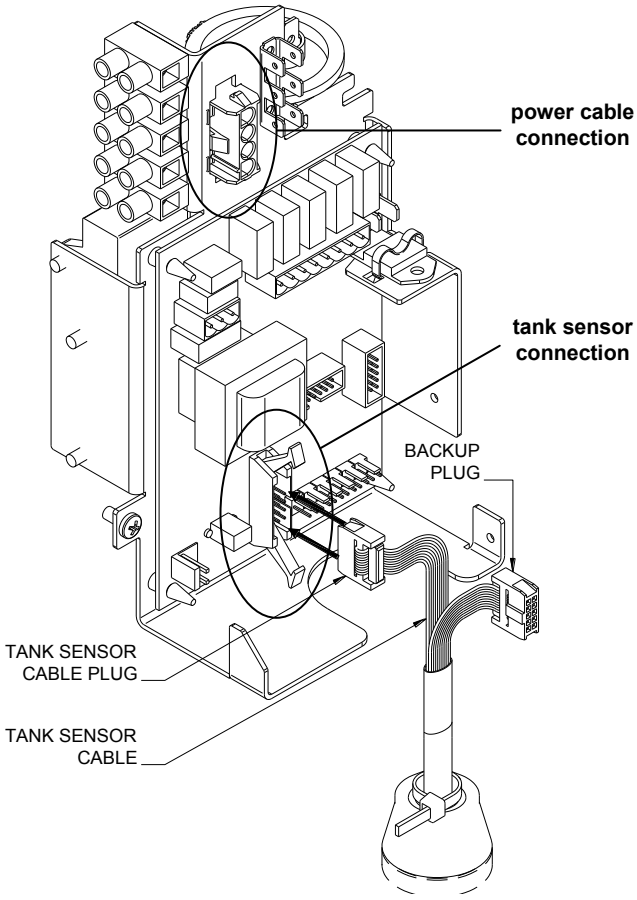
11. **Air Bleed Valve:** Open the air bleed valve screw by rotating anticlockwise one turn.

    This will allow air to bleed from the circulator and flexible hose during the filling of the tank process.

    - Leave the screw in this position.
    - Ensure the screw is not removed, nor left screwed shut.



Step 11
open air bleed valve screw
by rotating one turn anticlockwise



Steps 12 and 13
connect power cable and tank sensor cable

12. **Tank Sensor Cable Connection:** Insert ONE tank sensor cable plug firmly into the connector marked “TANK SENSOR” at the bottom of the control board.

    Note: There are two tank sensor cables protruding through the top of the storage tank, each with a tank sensor cable plug. Only **ONE** tank sensor cable plug is to be connected to the control board. The second plug is a backup plug and is not to be connected to any part of the control board.

    - Ensure the plug is fully inserted so the holding clips on the board automatically engage the plug.
    - Coil up both the excess length of tank sensor cable and the spare cable and plug for stowage behind the electrical cover when refitted.

      Do not allow the cables and spare plug to hang loose outside of the control board enclosure as damage to these components could occur.

13. **Power Cable Connection:** Connect the four (4) pin power cable plug to the connector at the top of the control board.

    - Ensure the plug fully engages the locking feature on the connector.

14. **Electrical Cover:** Replace the electrical cover, engaging the bottom of the cover into the slots on the supporting bracket.
    - Secure at the side with the mounting screw.
15. **Water Connections:** Connect the cold water supply and the hot water pipe work to the water heater.
    - Connect the temperature pressure relief valve and its drain line.

      Refer to "Connections – Plumbing" on page 28
16. **Water Supply:** Turn on the cold water supply and fill the water heater.
    - Check the pipe work and the inlet and outlet connection points of the flexible hoses for leaks.

      Refer to "To Fill And Turn On The Water Heater" on page 35, however the electrical supply should not be switched on at this stage.
17. **Air Louvre Attachment:** Replace the two air louvres, ensuring the longer skirt of the louvre is orientated to the bottom and re-fit all twelve (12) louvre attachment screws.
18. **Electrical Connection:** Refer to "Connections – Electrical" on page 30.
19. **Commissioning:** Refer to "Commissioning" on page 35.

CONNECTIONS – PLUMBING

CONNECTION SIZES

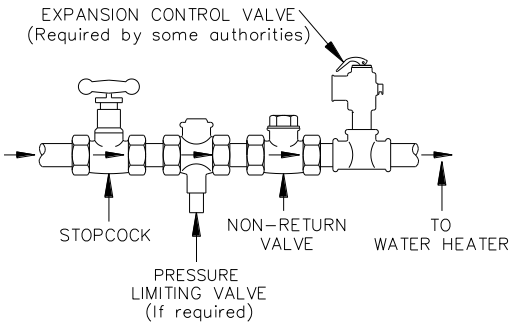
- Hot water connection: RP¾/20.
- Cold water connection: RP¾/20.
- Relief valve connection: RP½/15.

All plumbing work must be carried out by a qualified person and in accordance with the Plumbing Standard AS/NZS 3500.4 and local authority requirements.

WATER INLET AND OUTLET

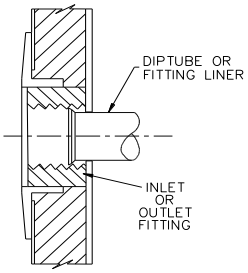
The pipe work must be cleared of foreign matter before connection and purged before attempting to operate the water heater. All olive compression fittings must use brass or copper olives. Use thread sealing tape or approved thread sealant on all fittings.

An isolation valve and non return valve must be installed on the cold water line to the water heater. An acceptable arrangement is shown in the diagram. Refer also to "Hot Water Delivery" on page 16 and to "Mains Water Supply" on page 15.



A disconnection union must always be provided at the cold water inlet and hot water outlet on the water heater to allow for disconnection of the water heater.

This water heater has either a plastic dip tube or fitting liner in the inlet and outlet fittings (see diagram). These must be in place for the water heater to function properly. Do not remove or damage them by using heat nearby. They will be pushed into the correct position as the fitting is screwed in.



PIPE SIZES

To achieve true mains pressure operation, the cold water line to the water heater should be the same size or bigger than the hot water line from the water heater.

The pipe sizing for hot water supply systems should be carried out by persons competent to do so, choosing the most suitable pipe size for each individual application. Reference to the technical specifications of the water heater and local regulatory authority requirements must be made.

TEMPERATURE PRESSURE RELIEF VALVE

The temperature pressure relief valve is shipped behind the front cover or of the water heater. The temperature pressure relief valve must be fitted before the water heater is operated. Before fitting the relief valve, make sure the probe has not been bent. Seal the thread with Teflon tape - never hemp. Make sure the tape does not hang over the end of the thread.

Screw the valve into the correct opening (refer to the installation diagram on page 19) leaving the valve drain pointing downwards. Do not use a wrench on the valve body - use the spanner flats provided. A copper drain line must be fitted to the temperature pressure relief valve (refer to "Relief Valve Drain" on page 29).

The valve must be insulated with closed cell polymer insulation or similar (minimum thickness 9 mm) and the insulation installed so as not to impede the operation of the valve. The insulation must be weatherproof and UV resistant if exposed.

EXPANSION CONTROL VALVE

Local regulations may make it mandatory to install an expansion control valve (ECV) in the cold water line to the water heater. In other areas, an ECV is required if the saturation index is greater than +0.4 (refer to “Water Supplies” on page 9).

The expansion control valve must always be installed after the non return valve and be the last valve installed prior to the water heater (refer to diagram on page 28). A copper drain line must be fitted to the expansion control valve (refer to "Relief Valve Drain" on page 29).

The valve must be insulated with closed cell polymer insulation or similar (minimum thickness 9 mm) and the insulation installed so as not to impede the operation of the valve. The insulation must be weatherproof and UV resistant if exposed.

RELIEF VALVE DRAIN

DN15 copper drain lines must be fitted to the temperature pressure relief valve and expansion control valve (if one is installed) to carry the discharge clear of the water heater. Connect the drain lines to the valves using disconnection unions. The drain line from the valve to the point of discharge should be as short as possible, have a continuous fall all the way from the water heater to the discharge outlet and have no tap, valves or other restrictions in the pipe work.

A drain line from a relief valve must comply with the requirements of AS/NZS 3500.4.

A drain line must be no longer than 9 metres with no more than three bends greater than 45° before discharging at an outlet or air break. The maximum length of 9 metres for a drain line is reduced by 1 metre for each additional bend required of greater than 45°, up to a maximum of three additional bends. Where the distance to the point of final discharge exceeds this length, the drain line can discharge into a tundish.

Subject to local regulatory authority approval, the drain lines from the temperature pressure relief valve and expansion control valve from an individual water heater may be interconnected.

The outlet of a drain line must be in such a position that flow out of the pipe can be easily seen, but arranged so discharge will not cause injury, damage or nuisance. The termination point of a drain line must comply with the requirements of AS/NZS 3500.4. Drain lines must not discharge into a safe tray.

In locations where water pipes are prone to freezing, drain lines must be insulated, must not exceed 300 mm in length and are to discharge into a tundish through an air gap of between 75 mm and 150 mm.

If a drain line discharges into a tundish, the drain line from the tundish must be not less than DN20. The drain line from a tundish must meet the same requirements as for a drain line from a relief valve.

For multiple installations the drain lines from several water heaters can discharge into a common tundish (refer to “Multiple Installations” on pages 32 to 34).

Warning: As the function of the temperature pressure relief valve on this water heater is to discharge high temperature water under certain conditions, it is strongly recommended the pipe work downstream of the relief valve be capable of carrying water exceeding 93°C. Failure to observe this precaution may result in damage to pipe work and property.

CONDENSATE DRAIN

A drain line must be fitted to the condensate drain to carry the discharge clear of the water heater. The drain line can be extended using 13 mm rigid hose or conduit. The pipe work from the condensate drain should be as short as possible, and fall all the way from the water heater with no restrictions. It should have no more than three right angle bends in it. The outlet of the drain line must be in such a position that flow out of the pipe can be easily seen - but arranged so water discharge will not cause damage or nuisance.

The condensate drain line must not be connected to the relief valves drain lines but may discharge at the same point.

CONNECTIONS – ELECTRICAL

The power supply to the water heater must not be switched on until the water heater is filled with water and a satisfactory megger reading is obtained.

MEGGER READING

When a megger test is conducted on this water heater, then the following should be noted.

⚠ **Warning:** This water heater contains electronic equipment and 500 V insulation tests must only be conducted between active and earth and between neutral and earth. An active to neutral test WILL damage the electronics.

An insulation test result of between 100 KΩ and 660 KΩ for this water heater is normal.

Typically the insulation resistance between live and earthed parts of an electrical installation should not be less than 1 MΩ. However AS/NZS 3000:2000 clause 6.3.3.3.2 'Results' states:

"The value of 1 MΩ may be reduced to:

- 0.01 MΩ for sheathed heating elements or appliances; or
- a value permitted in the Standard applicable to electrical equipment."

This model water heater is categorised as a 'stationary class 1 motor operated appliance' and has been tested to AS/NZS 3350.1:2002 clause 16 'Leakage current and electric strength' and has passed the requirements of this Standard. Therefore, this model water heater complies with the condition stated in AS/NZS 3000:2000 clause 6.3.3.3.2 (b).

ELECTRICAL CONNECTION

All electrical work and permanent wiring must be carried out by a qualified person and in accordance with the Wiring Rules AS/NZS 3000 and local authority requirements.

The water heater must be directly connected to a 240 V AC 50 Hz mains power supply. The water heater must be on its own circuit with an isolating switch installed at the switchboard. A secondary isolating switch may be installed within reach of the water heater.

The 551 310 model heat pump water heater is recommended for connection to a minimum 16 hour per day power supply.

A flexible 20 mm conduit is required for the electrical cable to the water heater. The conduit is to be connected to the unit with a 20 mm terminator. Connect the power supply wires directly to the terminal block and earth tab connection, ensuring there are no excess wire loops inside the front cover.

The water heater will only operate on a sine wave at 50 Hz. Devices generating a square wave cannot be used to supply power to the water heater.

BOOSTER HEATING UNIT AND THERMOSTAT SETTING

The water heater has a booster heating unit and thermostat. The booster heating unit will be automatically activated during periods when the ambient air temperature falls below 5°C and heating of the water is required. The thermostat is not adjustable.

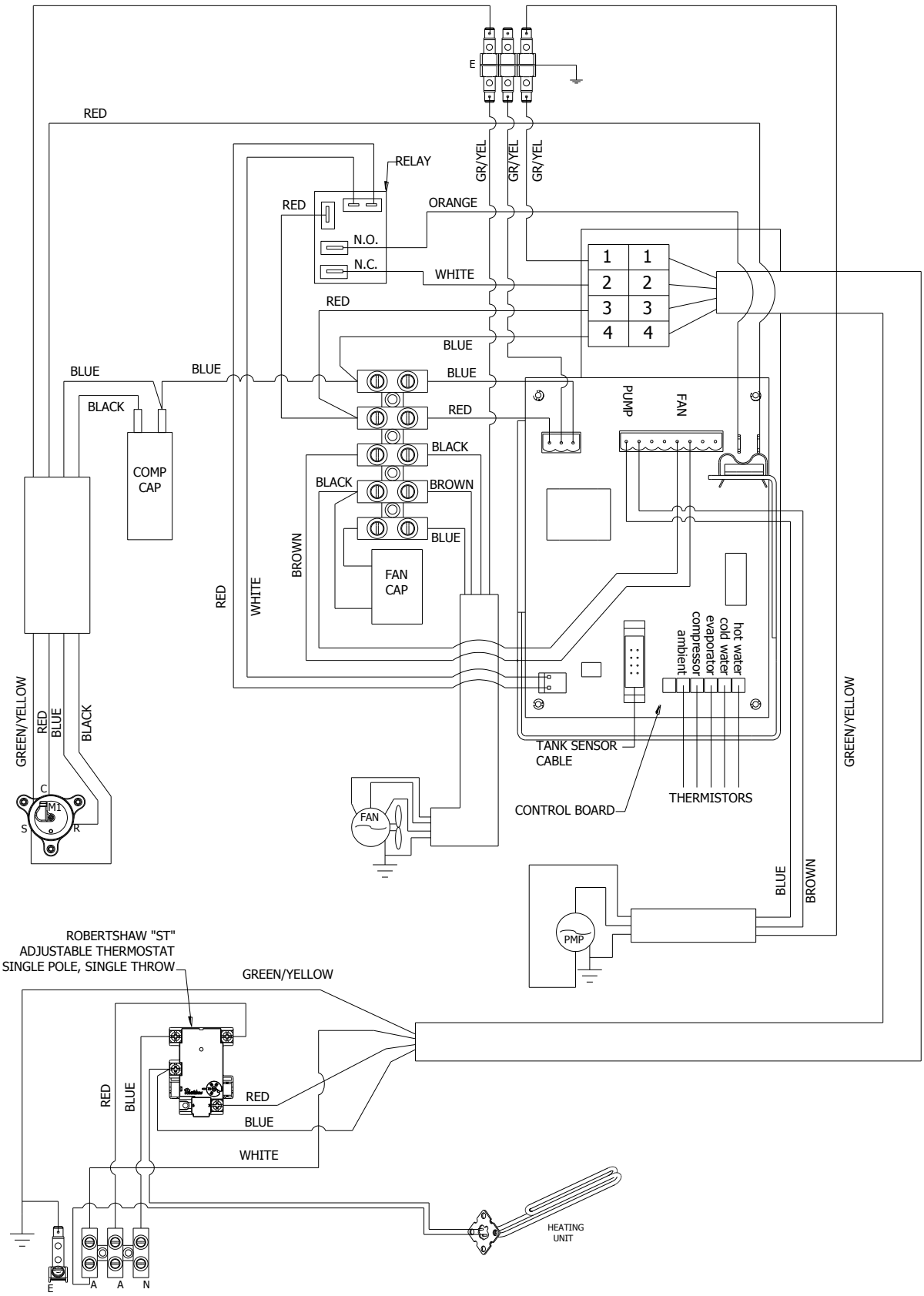
TIMER

A timer can be installed in the electrical circuit to the water heater. The timer must be weatherproof if it is installed outdoors.

It may be desirable for the water heater not to operate between certain hours, such as during the peak period when connected to a Time of Use electricity supply due to a more expensive tariff rate applying. A timer will affect the operating times of both the heat pump circuit and the booster heating unit.

Note: The 551 310 model heat pump water heater is recommended for connection to a minimum 16 hour per day power supply.

WIRING DIAGRAM



Electrical Circuit for Heat Pump – Robertshaw “ST” Thermostat

MULTIPLE INSTALLATIONS

A multiple installation of Rheem heat pump water heaters on a single manifold or multiple manifolds is possible, using the Equa-Flow® manifold system, where large volumes of hot water is required. The Equa-Flow principle will function with water heaters in line, around a corner or in rows back to back (refer to the diagrams on pages 33 to 34).

The cold water and hot water manifolds must be designed to balance the flow from each water heater. To achieve this, there are basic installation requirements and principles which must be followed:

1. The maximum number of water heaters in a bank should be 8, however several banks of water heaters can be installed.

2. The hot water line from the manifold must leave from the opposite end to which the cold water line enters the manifold.

3. The water heaters must be of the same model.

4. The cold water line, cold and hot headers and hot water line must be sized to meet the requirements of both AS/NZS 3500.4 and the application.

5. A non return valve, isolation valve and if required a pressure limiting valve and expansion control valve, must be installed on the cold water line to the system.

6. A full flow gate valve or ball valve (not a stop tap, as used on a single water heater installation) must be installed on both the cold water branch and hot water branch of each water heater.

7. Non return valves or pressure limiting valves must not be installed on the branch lines to the water heaters.

8. All fittings, valves and branch lines must be matched sets all the way along the manifold.

9. Sufficient space must be left to enable access, servicing or removal of any water heater.

10. The temperature pressure relief valve drain line from each water heater can terminate at a common tundish (funnel) with a visible air break at each drain discharge point (refer to the diagram on page 33 and to “Relief Drain Line” on page 29).

Refer to the diagrams on pages 33 to 34 for installation and plant layout details.

In addition to the basic installation requirements and principles of manifolding, the following requirements for manifolding heat pump water heaters of this model must be followed:

1. The heat pump water heaters must be turned through 90° from a standard installation, with the front cover facing the back of the adjacent water heater. This is to ensure the air intake and air discharge of the heat pump are parallel to the adjacent heat pump water heater.

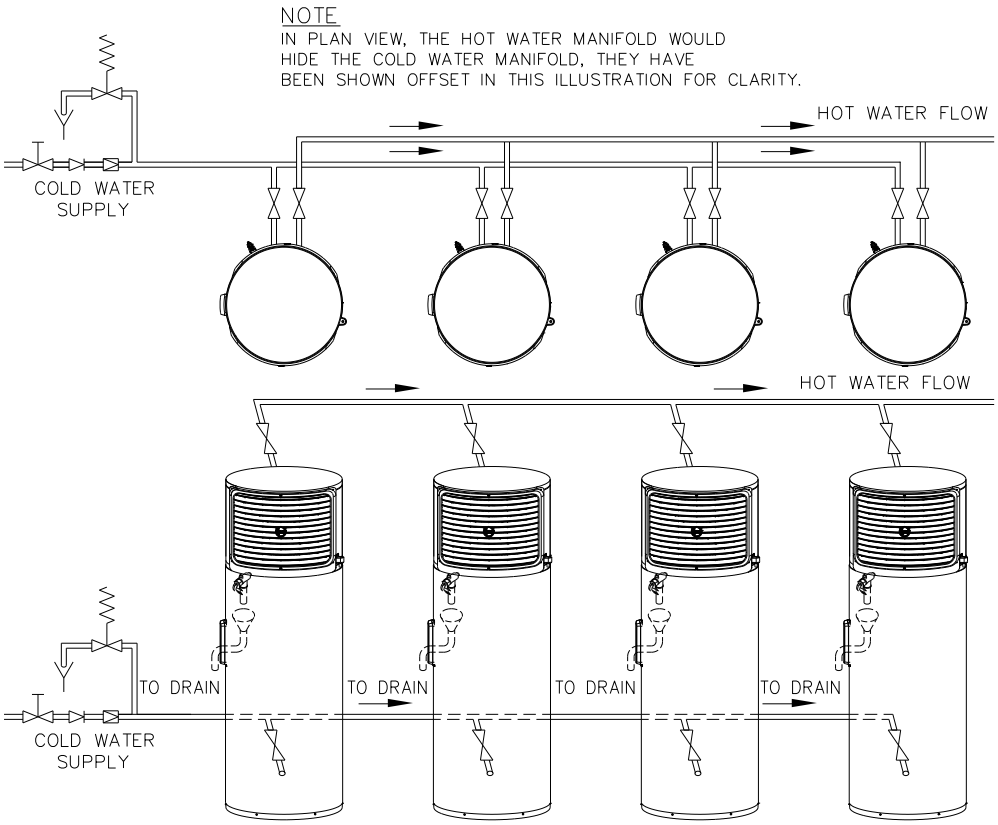
2. If the installation is alongside or adjacent to a wall, it is recommended to install the water heater with the air intake facing in the direction of the wall and the air discharge facing away from the wall.

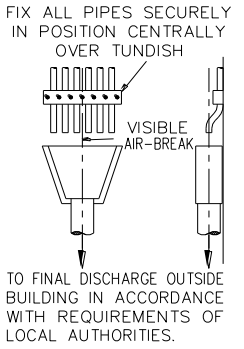
3. A minimum of 900 mm is required between the heat pump water heater and a wall to enable access and servicing of the heat pump system.

4. A minimum of 900 mm is required between and in front of each heat pump water heater to enable access, servicing or removal of the water heater.

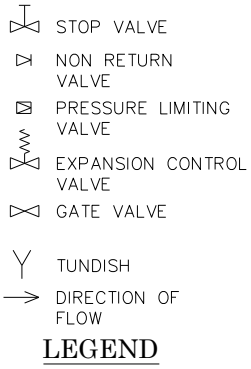
5. A circulated hot water flow and return system must not be returned back into the heat pump water heaters (refer to “Circulated Flow and Return System” on page 17).

TYPICAL INSTALLATION – MULTIPLE HEAT PUMP WATER HEATERS



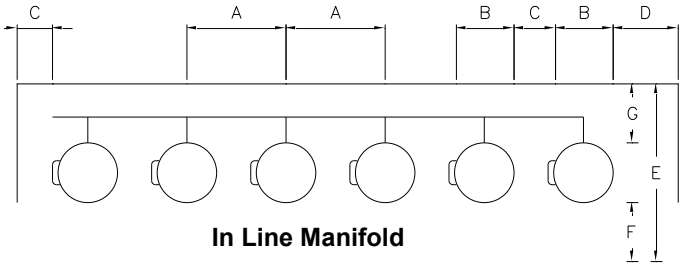


TPR Valve Drain Line Common Discharge Point

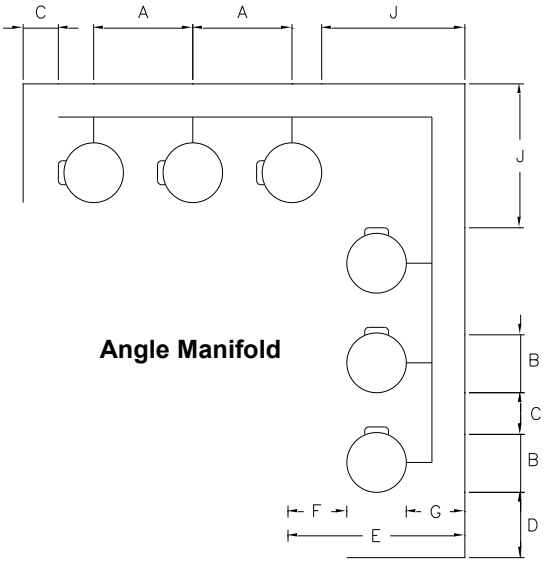


LEGEND

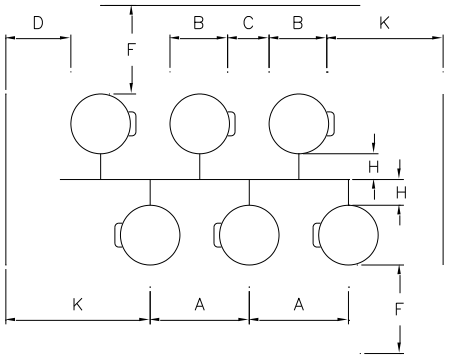
INSTALLATION DIMENSIONS – MULTIPLE HEAT PUMP WATER HEATERS



In Line Manifold



Angle Manifold



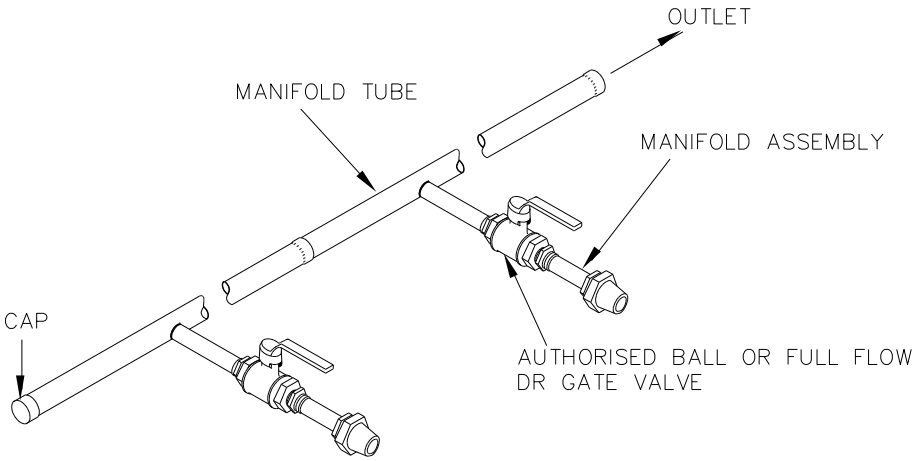
Back to Back Manifold

Installation Layout Minimum Dimensions										
Model	**A**	**B**	**C ***	**D**	**E**	**F ***	**G ***	**H**	**J**	**K**
310 HAV	1545	645	900	900	2445	900	900	300	1670	1675

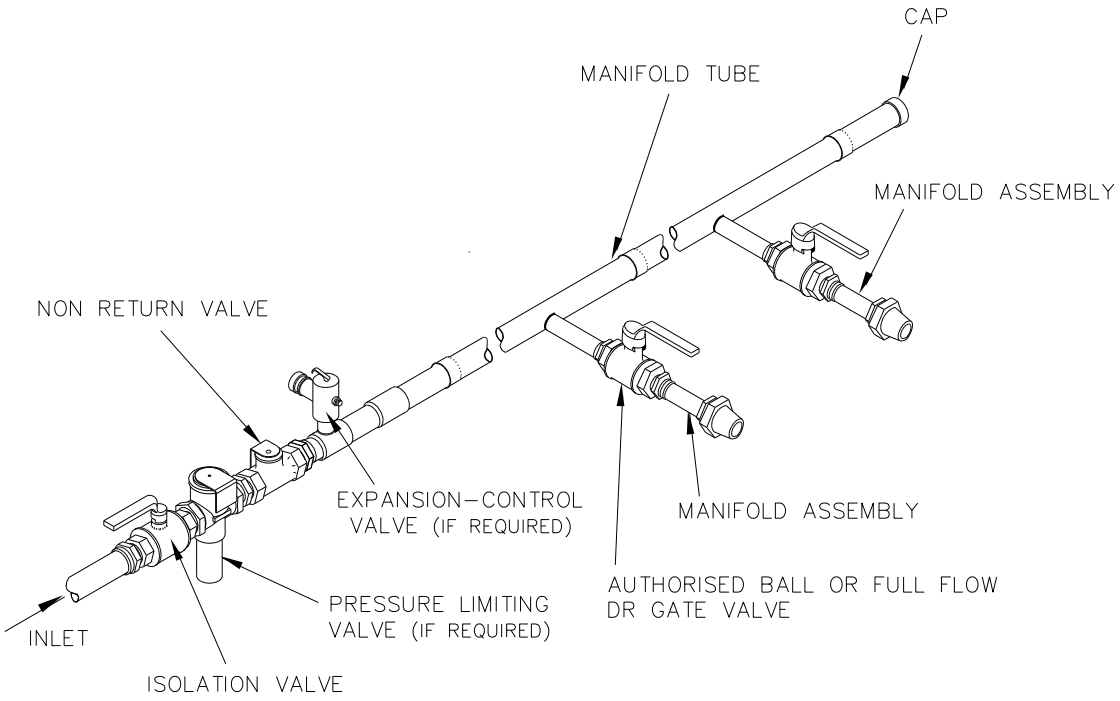
Notes

1. A minimum clearance of 900 mm (C*, F* & G*) should be left in front and at the sides of the water heater for access, servicing and water heater removal.
2. Air flow through the heat pump must be parallel to the adjacent heat pump water heater.

MANIFOLD ARRANGEMENT



Hot Manifold Assembly



Cold Manifold Assembly

COMMISSIONING

TO FILL AND TURN ON THE WATER HEATER

The power supply to the water heater must not be switched on until the water heater is filled with water and a satisfactory megger reading is obtained.

- Open all of the hot water taps in the house (don't forget the shower).
- Open the cold water isolation valve fully to the water heater.

  Air will be forced out of the taps.
- Close each tap as water flows freely from it.
- Check the pipe work for leaks.
- Switch on the electrical supply at the isolating switch to the water heater.
- Set the timer if one is installed.

The heat pump may take up to 30 seconds to commence operating when the power supply is switched on. The heat pump will only operate when the water in the storage tank requires heating, the heat pump compressor is cool and power is available at the water heater. If the ambient air temperature is below the minimum operating temperature of 5°C and the system calls for heating, the booster heating unit will operate instead.

When the heat pump is operating, the system may switch to the booster heating unit if it detects that the ambient air temperature is below the minimum operating temperature of 5°C. It may also switch back to heat pump operation from the booster heating unit if it detects the ambient air temperature has moved back to within the heat pump's operating temperature range.

Note: The heat pump may not turn on after having just completed a heating cycle and more hot water is drawn from the water heater. The heat pump will wait until the compressor has cooled down and the conditions for start up are favourable, in order to protect the compressor from damage. This may take up to 20 minutes from the last heating cycle.

It is important to wait for five minutes after the heat pump has activated to ensure it continues to operate and is functioning correctly.

Explain to the householder or a responsible officer the functions and operation of the heat pump water heater. Upon completion of the installation and commissioning of the water heating system, leave this guide with the householder or a responsible officer.

TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater on completion of the installation, such as on a building site or where the premises are vacant, then:

- Switch off the electrical supply at the isolating switch to the water heater.
- Close the cold water isolation valve at the inlet to the water heater.

DRAINING THE WATER HEATER

To drain the water heater:

- Turn off the water heater (refer to “To Turn Off The Water Heater” on page 35).
- Close all hot water taps.
- Operate the relief valve release lever - do not let the lever snap back or you will damage the valve seat.

  Operating the lever will release the pressure in the water heater.
- Undo the union at the cold water inlet and attach a hose.

  Let the other end of the hose go to a drain.
- Operate the relief valve again.

  This will let air into the water heater and allow the water to drain through the hose.

This page is intentionally blank.

This page is intentionally blank.

RHEEM HEAT PUMP WATER HEATER WARRANTY
- AUSTRALIA ONLY -

HEAT PUMP WATER HEATER MODEL 551310

WARRANTY CONDITIONS

1. This warranty is applicable only to water heaters manufactured from 1st August 2010.
2. The water heater must be installed in accordance with the water heater installation instructions, supplied with the water heater, and in accordance with all relevant statutory and local requirements of the State in which the water heater is installed.
3. Where a failed component, storage tank or heat pump module is replaced under warranty, the balance of the original warranty period will remain effective. The replaced component, storage tank or heat pump module does not carry a new warranty.
4. Where the water heater is installed outside the boundaries of a metropolitan area as defined by Rheem or further than 25 km from a regional Rheem branch office, or an Accredited Service Agent, the cost of transport, insurance and travelling costs between the nearest Rheem Accredited Service Agent's premises and the installed site shall be the owner's responsibility.
5. Where the water heater is installed in a position that does not allow safe, ready access, the cost of accessing the site safely, including the cost of additional materials handling and / or safety equipment, shall be the owner's responsibility.
6. The warranty only applies to the water heater and original or genuine (company) component replacement parts and therefore does not cover any plumbing or electrical parts supplied by the installer and not an integral part of the water heater, e.g. pressure limiting valve; isolation valves; non-return valves; electrical switches; pumps or fuse.
7. The water heater must be sized to supply the hot water demand in accordance with the guidelines in the water heater literature.

WARRANTY EXCLUSIONS

1. REPAIR AND REPLACEMENT WORK WILL BE CARRIED OUT AS SET OUT IN THE WATER HEATER WARRANTY ABOVE HOWEVER THE FOLLOWING EXCLUSIONS MAY CAUSE THE WATER HEATER WARRANTY TO BECOME VOID AND MAY INCUR A SERVICE CHARGE AND / OR COST OF PARTS.

a) Accidental damage to the water heater or any component, including: Acts of God; failure due to misuse; incorrect installation; attempts to repair the water heater other than by Rheem Service or a Rheem Accredited Service Agent.
b) Where it is found there is nothing wrong with the water heater; where the complaint is related to excessive discharge from the temperature and / or pressure relief valve due to high water pressure; where there is no flow of hot water due to faulty plumbing; where water leaks are related to plumbing and not the water heater or water heater components; where there is a failure of electricity or water supplies; where the supply of electricity or water does not comply with relevant codes or acts.
c) Where the water heater or water heater component has failed directly or indirectly as a result of: excessive water pressure; excessive temperature and / or thermal input; blocked overflow / vent drain; corrosive atmosphere; ice formation in the pipe work to or from the water heater.
d) Where the water heater is located in a position that does not comply with the water heater installation instructions or relevant statutory requirements, causing the need for major dismantling or removal of cupboards, doors or walls, or use of special equipment to bring the water heater to floor or ground level or to a serviceable position.
e) Where the water heater has been connected at any time to a water supply that does not comply with the water supply guidelines as outlined in the Owner's Guide and Installation Instructions.

2. SUBJECT TO ANY STATUTORY PROVISIONS TO THE CONTRARY, THIS WARRANTY EXCLUDES ANY AND ALL CLAIMS FOR DAMAGE TO FURNITURE, CARPETS, WALLS, FOUNDATIONS OR ANY OTHER CONSEQUENTIAL LOSS EITHER DIRECTLY OR INDIRECTLY DUE TO LEAKAGE FROM THE WATER HEATER, OR DUE TO LEAKAGE FROM FITTINGS AND / OR PIPE WORK OF METAL, PLASTIC OR OTHER MATERIALS CAUSED BY WATER TEMPERATURE, WORKMANSHIP OR OTHER MODES OF FAILURE.

RHEEM HEAT PUMP WATER HEATER WARRANTY
- AUSTRALIA ONLY -

WARRANTY – HEAT PUMP WATER HEATER MODEL 551310

Rheem will repair or replace, at Rheem's sole discretion and subject to the warranty conditions and exclusions, any component, the storage tank or the heat pump module if it fails within the warranty period below.

Installation	Period	Warranty
All Components (from date of installation)		
All installations	Year 1	New component, storage tank or heat pump module, free of charge, including labour.**
Sealed System * (from date of installation)		
Water heater installed in a "single-family domestic dwelling"	Year 2	New sealed system component, free of charge, including labour.**
Cylinder (from date of installation)		
Water heater installed in a "single-family domestic dwelling"	Years 2 & 3	New storage tank, free of charge, including labour.**
	Years 4 & 5	New storage tank, free of charge, with installation and labour costs being the responsibility of the owner.
Water heater installed in any other than a "single-family domestic dwelling"	Years 2 & 3	New storage tank, free of charge, with installation and labour costs being the responsibility of the owner.

Notes:
* The Sealed System includes components that carry refrigerant only, e.g. Compressor, Condenser, TX Valve, Receiver / Drier, Evaporator and associated pipe work.
** Refer to items 4 and 5 of warranty conditions.

Amended warranty periods may apply where a government rebate has been received for the heat pump water heater. Phone 131 031 for details.

Rheem reserves the right to transfer fully functional components from the defective storage tank or heat pump module to the replacement storage tank or heat pump module if required.

In addition to this warranty, the Trade Practices Act 1974 and similar laws in each state and territory provide the owner under certain circumstances with certain minimum statutory rights in relation to your Rheem water heater. This warranty must be read subject to that legislation and nothing in this warranty has the effect of excluding, restricting or modifying those rights.

RHEEM AUSTRALIA PTY LTD
A.B.N. 21 098 823 511
www.rheem.com.au

FOR SERVICE TELEPHONE
131 031 AUSTRALIA
0800 657 335 NEW ZEALAND
or refer local Yellow Pages

Revision Date: 2011 March 126524H